



**BROADBAND
OFFICE**



American Rescue Plan Act State & Local Fiscal Recovery Fund (ARPA SLFRF) 1.0 Priority Area Grant Program GIS Workshop

South Carolina Office of Regulatory Staff | August 11, 2022

Q&A and Leave Behinds

- Please add your questions to the chat, all questions will be aggregated and posted with responses as FAQ on ORS' website
- Attached to this PowerPoint are step by step instructions for the demos that will follow
- The FAQ and PowerPoint will be located here:
<https://ors.sc.gov/broadband/investments/state/arpaslfrf>

Why Are We Here?

- State ARPA Legislation passed by General Assembly and signed into law by the Governor on May 13, 2022 (H. 4408)
- Large focus on Broadband Deployment
- Eligible census blocks that may be funded for ARPA SLFRF have been mapped (US 2020 Census Block Data)
 - Established 'Priority Areas' as written in state legislation
 - Unserved census blocks are the only areas available for funding



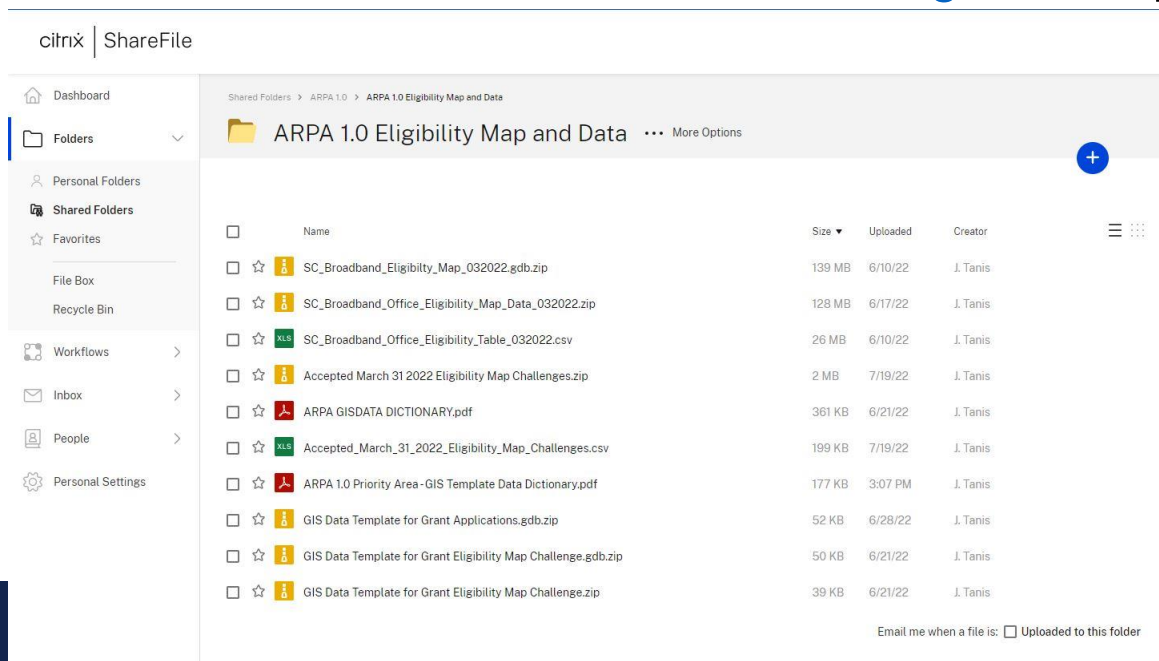
The Goal of this Session

Topics covered will include:

- How to download the eligibility map files in GIS
- Extracting eligible areas after map challenges
- Using and populating the template GIS data for a grant submission
- Submitting ARPA SLFRF Template GIS data to ORS Broadband Office
- What are the deadlines
- Why are we collecting this data
- Q&A

Downloading GIS Broadband Data from ORS

- Applicants must fill out the **Data Access Request form**, found here: <https://arcg.is/1fiq1j>
 - Provides access to download data from SCDigitalDrive hub site and Citrix File Share
 - Users must fill out this form prior to obtaining access to GIS Data
 - Email Broadband@ors.sc.gov with questions



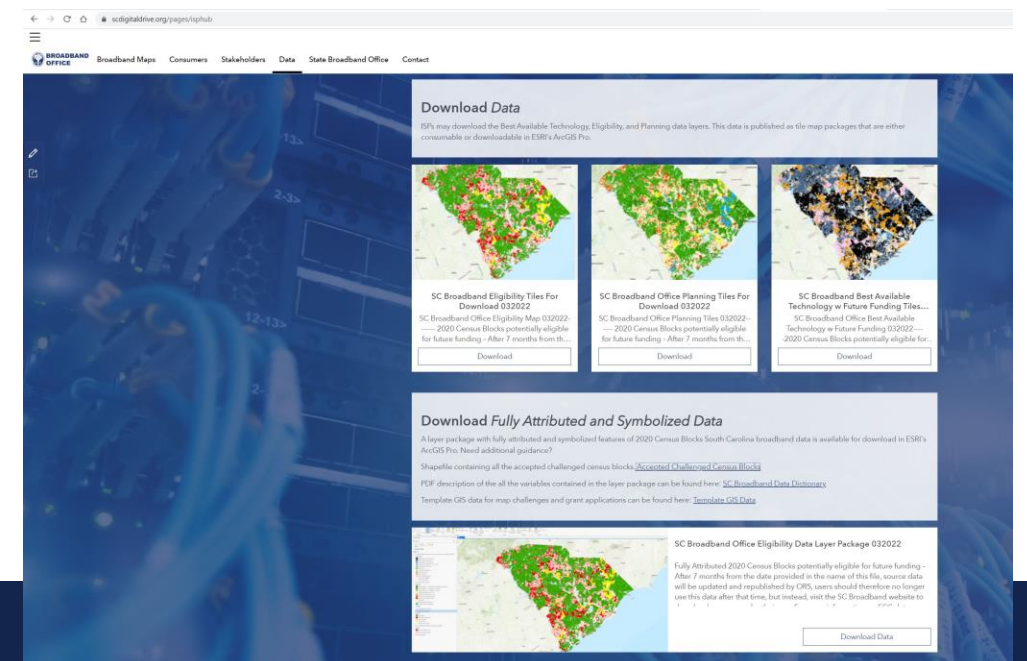
citrix | ShareFile

Shared Folders > ARPA 1.0 > ARPA 1.0 Eligibility Map and Data

ARPA 1.0 Eligibility Map and Data

Name	Size	Uploaded	Creator
SC_Broadband_Eligibility_Map_032022.gdb.zip	139 MB	6/10/22	J. Tanis
SC_Broadband_Office_Eligibility_Map_Data_032022.zip	128 MB	6/17/22	J. Tanis
SC_Broadband_Office_Eligibility_Table_032022.csv	26 MB	6/10/22	J. Tanis
Accepted March 31 2022 Eligibility Map Challenges.zip	2 MB	7/19/22	J. Tanis
ARPA GISDATA DICTIONARY.pdf	361 KB	6/21/22	J. Tanis
Accepted_March_31_2022_Eligibility_Map_Challenges.csv	199 KB	7/19/22	J. Tanis
ARPA 1.0 Priority Area- GIS Template Data Dictionary.pdf	177 KB	3:07 PM	J. Tanis
GIS Data Template for Grant Applications.gdb.zip	52 KB	6/28/22	J. Tanis
GIS Data Template for Grant Eligibility Map Challenge.gdb.zip	50 KB	6/21/22	J. Tanis
GIS Data Template for Grant Eligibility Map Challenge.zip	39 KB	6/21/22	J. Tanis

Email me when a file is: Uploaded to this folder



Download Data

ISPs may download the Best Available Technology Eligibility, and Planning data layers. This data is published as the map packages that are either consumable or downloadable in ESRI's ArcGIS Pro.

SC Broadband Eligibility Tiles For Download 032022

SC Broadband Office Planning Tiles For Download 032022

SC Broadband Best Available Technology w Future Funding Tiles...

Download Fully Attributed and Symbolized Data

A layer package with fully attributed and symbolized features of 2020 Census Blocks South Carolina broadband data is available for download in ESRI's ArcGIS Pro. Need additional guidance?

Shapefile containing all the accepted challenged census blocks [Accepted Challenged Census Blocks](#)

PDF description of the all the variables contained in the layer package can be found here: [SC Broadband Data Dictionary](#)

Template GIS data for map challenges and grant applications can be found here: [Template GIS Data](#)

SC Broadband Office Eligibility Data Layer Package 032022

Fully Attributed 2020 Census Blocks potentially eligible for future funding - After 7 months from the date provided in the name of this file, source data will be updated and republished by ORS, users should therefore no longer use this data after that time, but instead, visit the SC Broadband website to

Download Data

About the Data





- If downloading from Hub site, data is fully symbolized to match broadband maps using ArcPro
 - Users can drag the symbolized data from ArcPro to ArcMap and map symbology will be preserved
- If downloading from Citrix, data needs to be symbolized by ISP to match broadband maps
- GIS Data dictionary is located on Citrix
- Template GIS Data dictionary is located in [SC Broadband office ARPA guidelines document](#)

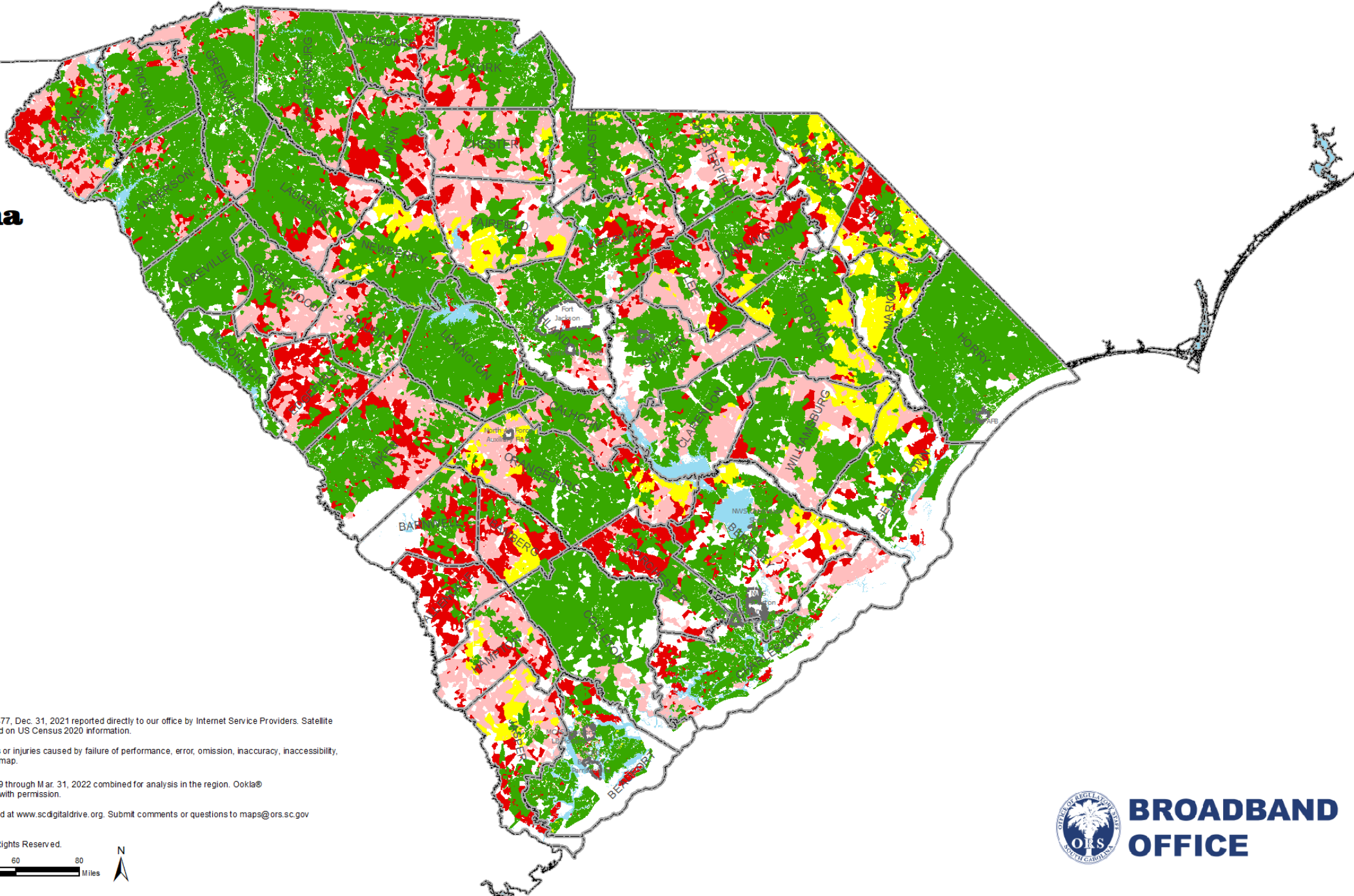
South Carolina

Eligibility

March 31, 2022

Eligibility Status

-  Served
-  UnServed Priority Area
-  UnServed
-  Funded



Data Sources: Based on SC Broadband Office analysis of FCC Form 477, Dec. 31, 2021 reported directly to our office by Internet Service Providers. Satellite and mobile broadband services are excluded. Demographic data based on US Census 2020 information.

The SC Broadband Office is neither responsible nor liable for damages or injuries caused by failure of performance, error, omission, inaccuracy, inaccessibility, incompleteness or any other errors in information or formatting on this map.

Speedtest Intelligence® data from Jan. 1, 2019 through Mar. 31, 2022 combined for analysis in the region. Ookla® trademarks used under license and reprinted with permission.

Additional broadband information may be found at www.scdigitaldrive.org. Submit comments or questions to maps@ors.sc.gov

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South Carolina

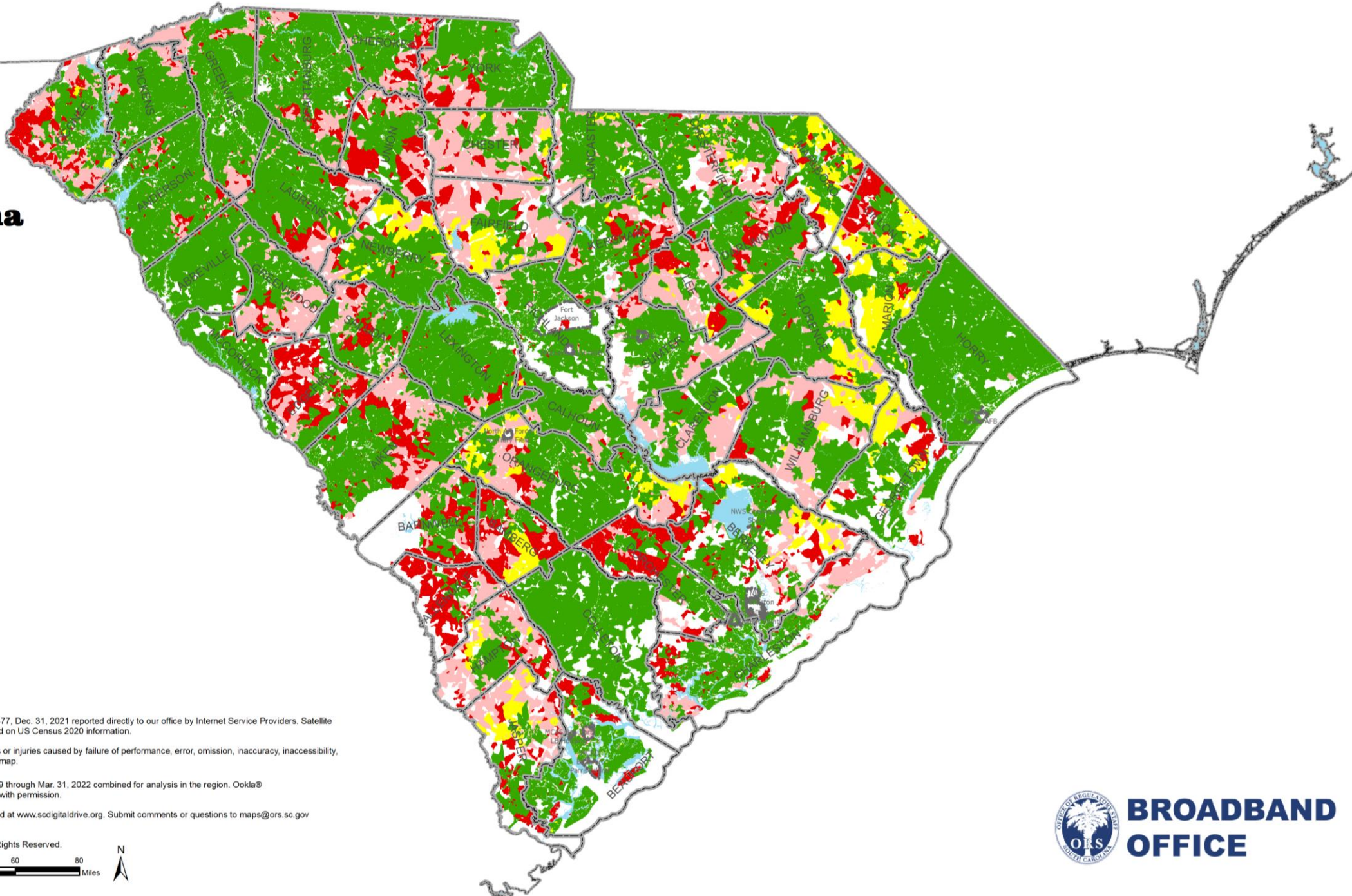
Eligibility

**with map challenges*

March 31, 2022

Eligibility Status

-  Served
-  UnServed Priority Area
-  UnServed
-  Funded



Data Sources: Based on SC Broadband Office analysis of FCC Form 477, Dec. 31, 2021 reported directly to our office by Internet Service Providers. Satellite and mobile broadband services are excluded. Demographic data based on US Census 2020 information.

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Speedtest Intelligence® data from Jan. 1, 2019 through Mar. 31, 2022 combined for analysis in the region. Ookla® trademarks used under license and reprinted with permission.

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Downloading GIS Broadband Template Data from ORS

citrix | ShareFile

Dashboard

Folders

Personal Folders

Shared Folders

Favorites

File Box

Recycle Bin

Workflows

Inbox

People

Personal Settings

Shared Folders > ARPA 1.0 > ARPA 1.0 Eligibility Map and Data

ARPA 1.0 Eligibility Map and Data

Download | Share | Preview | Copy | More

	Name	Size	Uploaded	Creator
<input type="checkbox"/>	SC_Broadband_Eligibility_Map_032022.gdb.zip	139 MB	6/10/22	J. Tanis
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<input type="checkbox"/>	ARPA 1.0 Priority Area -GIS Template Data Dictionary.pdf	177 KB	3:07 PM	J. Tanis
<input checked="" type="checkbox"/>	GIS Data Template for Grant Applications.gdb.zip	52 KB	6/28/22	J. Tanis
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<input type="checkbox"/>	GIS Data Template for Grant Eligibility Map Challenge.zip	39 KB	6/21/22	J. Tanis

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GIS Data Dictionary

ATTACHMENT I

DATA DICTIONARY FOR SUBMISSION OF GIS SHAPEFILES

The utilization of Geographic Information System (“GIS”) data will occur throughout the lifecycle of a project, beginning with an applicant’s initial grant submission and ending with delivery of as-built shapefiles depicting areas where construction has occurred. This exhibit outlines the type and format of GIS data required for submission to the South Carolina Office of Regulatory Staff (“ORS”). GIS-based data will be used to evaluate grant submissions, manage grants awards, and track Broadband investments over time. GIS data may also be integrated into Quality Assurance measures developed by ORS to aid in the verification of work completed.

GIS Template Shapefile Data has been created to match with the data schema outlined in the sections that follow. It is available for download here: “ARPA 1.0 Eligibility Map and Data” folder on Citrix. Applicants are highly recommended to use the templates as their starting point for developing conceptual designs of proposed projects they plan to submit to the ORS. Incorrect, incomplete, or missing data may disqualify an applicant from funding.

All data submitted to the ORS must include Federal Geographic Data Committee (“FGDC”), compliant metadata describing the source, characteristics, and methods used for data creation, manipulation/editing, and associated attribution. As-built data (Fiber Lines, Structures, and Network Junctions), delivered at the completion of the project should be within +/- 3’ horizontal accuracy. Methods used for ensuring accuracy may include, but not be limited to digitizing GIS data to match statewide aerial imagery, which is map accurate at a 1:2400 or 1”=200’. Statewide aerial imagery is published through the state Geographic Information Council and located here: <https://www.arcgis.com/apps/mapviewer/index.html?layers=1a3f8aa93e674dcd93396b8d2c11e490> Imagery is on a planned update of once per year. Therefore, modifying planning-level data to conform to as-built data by mapping at a 1:2400 scale using statewide aeriels is an acceptable approach for ensuring horizontal accuracy thresholds have been met in accordance with this data standard. Regardless of the approach, applicants must document their methods chosen in the metadata for a given data layer.

Unless otherwise specified, Map Projections and Datums for GIS data submitted should conform to the following

NAD 1983 StatePlane_South_Carolina_FIPS_3900
WKID: 32133 Authority: EPSG

Projection: Lambert_Conformal_Conic
False_Easting: 609600.0
False_Northing: 0.0
Central_Meridian: -81.0
Standard_Parallel_1: 32.5
Standard_Parallel_2: 34.83333333333334
Latitude_Of_Origin: 31.83333333333333

Linear Unit: Meter (1.0)

Geographic Coordinate System: GCS_North_American_1983
Angular Unit: Degree (0.0174532925199433)
Prime Meridian: Greenwich (0.0)
Datum: D_North_American_1983
Spheroid: GRS_1980
Semimajor Axis: 6378137.0
Semiminor Axis: 6356752.314140356
Inverse Flattening: 298.257222101

Broadband GIS Data Dictionary

Layer Name	Layer Type	Definition	Comments
Proposed Project Service Area	Polygon	The serviceable project area boundary from which all structures will have Broadband Access upon completion of the project	Area should be inclusive of all proposed homes, businesses, and anchor institutions an ISP proposed to pass. Upon award, geometry cannot change without an amendment to the agreement
Attribute Name	Data Type	Definition	Values/Comments
Project ID Alias = ProjectID	Text	Unique ID provided by an ISP	This is an ISP generated value preferably linked to their internal management system
TechType Alias = Technology Type	Text	Type of Technology to be deployed	Fiber to the Premises, Hybrid Fiber/Coax, Fixed Wireless/Satellite
Layer Name	Layer Type	Definition	Values/Comments
2020 Census Blocks in Proposed Service Area	Polygon	Eligible 2020 Census Block data depicting only those areas for which a proposed project may occur	Feature instances should match with native 2020 Census Block data, (do not merge or edit the geometries of the Census data), only those areas where projects are proposed should be included. Upon award, geometry cannot change without an amendment to the agreement

Starts of page 11
of Guidelines

Demonstration

How to Download required data,
Create new Eligible Census Blocks
layer, and Interact with SC Broadband
GIS Template Data

76		
77	<u>Section 1.7 - Project Service Area Information</u>	
78		
79	Estimated Miles of Fiber to be Installed	(Value found in Proposed Line Work Layer)
80	Estimated Percentage Underground	(Value found in Proposed Line Work Layer)
81	Estimated Percentage Aerial	(Value found in Proposed Line Work Layer)
82		
83		
84	Number of Counties to be Impacted	(Value found in 2020 Census Blocks in Proposed Service Area Layer)
85	County Names	
86		
87	Total Number of Census Blocks with Concentrations of K-12	(Value found in 2020 Census Blocks in Proposed Service Area Layer)
88	Total number of Census Blocks in DDA's	(Value found in 2020 Census Blocks in Proposed Service Area Layer)
89	Total number of Census Blocks NOT in DDA or K-12 Concentration	(Value found in 2020 Census Blocks in Proposed Service Area Layer)
90	Total Number of unserved 2020 Census Blocks part of Proposed Project	(Value found in 2020 Census Blocks in Proposed Service Area Layer)
91		
92	Total number of housing units served	(Value found in Proposed Project Served Structures Layer)
93	Total number of businesses served	(Value found in Proposed Project Served Structures Layer)
94	Total number of other Public Facilities e.g. community centers, fire stations served	(Value found in Proposed Project Served Structures Layer)
95	Total Structures Served	#VALUE!
96	Average Cost Per Structure Served	
97		
98	Does the applicant plan to serve every structure in the proposed project service area?	Select one
99		
100		

ARPA SLFRF Grant Application – Section 1.7

- All GIS data must match identically to your Section 1.7 - Project Service Area Information
- If data does not match, GIS Data will be sent back for revisions, until data matches the application

The screenshot displays an Excel spreadsheet with the following content:

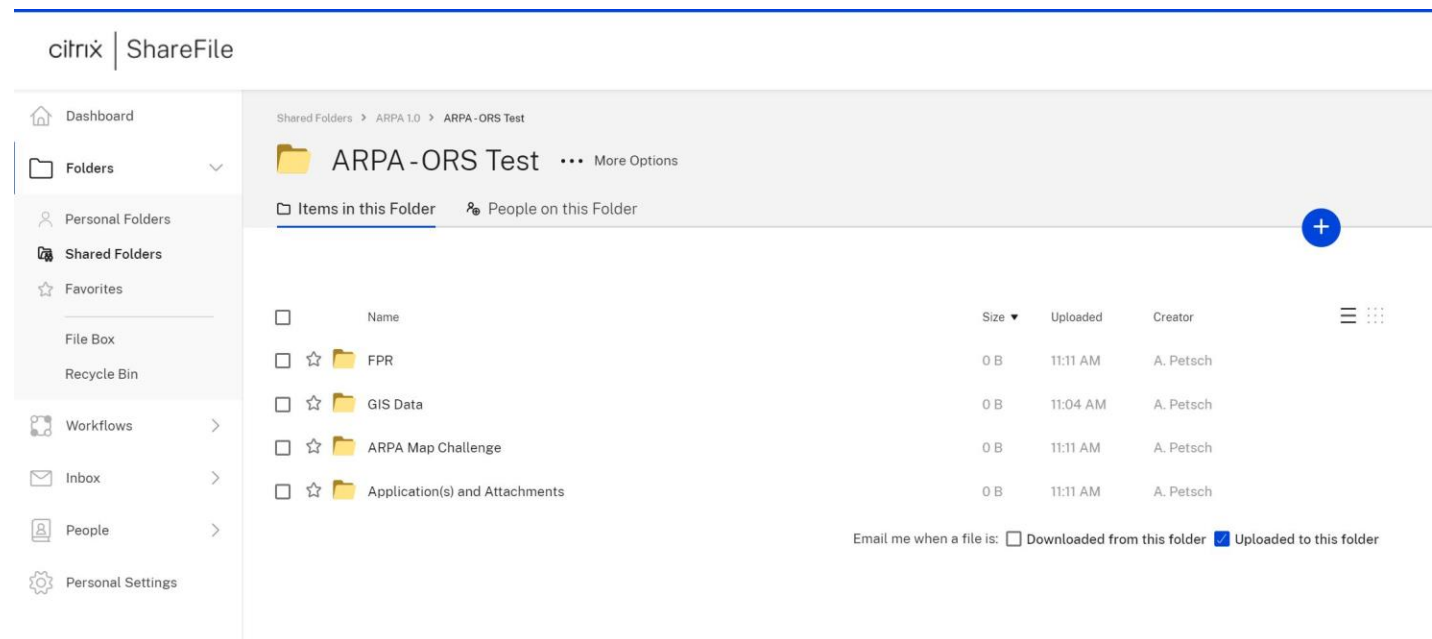
	A	B	C	D
76				
77	Section 1.7 - Project Service Area Information			
78				
79	Estimated Miles of Fiber to be Installed			
80	Estimated Percentage Underground			
81	Estimated Percentage Aerial			
82				
83				
84	Number of Counties to be Impacted			
85	County Names			
86				
87	Total Number of Census Blocks with Concentrations of K-12			
88	Total number of Census Blocks in DDA's			
89	Total number of Census Blocks NOT in DDA or K-12 Concentration			
90	Total Number of unserved 2020 Census Blocks part of Proposed Project			
91				
92	Total number of housing units served			
93	Total number of businesses served			
94	Total number of other Public Facilities e.g. community centers, fire stations served			
95	Total Structures Served			0
96	Average Cost Per Structure Served			
97				
98	Does the applicant plan to serve every structure in the proposed project service area?			Select one
99				
100				
101	If no, provide an explanation for why the Project will not Pass all Homes in the proposed project service area			

The spreadsheet includes a ribbon with tabs for 'Section 1 App Information', 'Section 2 Budget Summary', 'Section 3 Confirmations', 'Section 4 Additional Info', 'Section 5 Project Sponsors', and 'Section 6 Attachments'.

Where to Submit ARPA SLFRF 1.0 Materials

Submitting ARPA SLFRF 1.0 Materials:

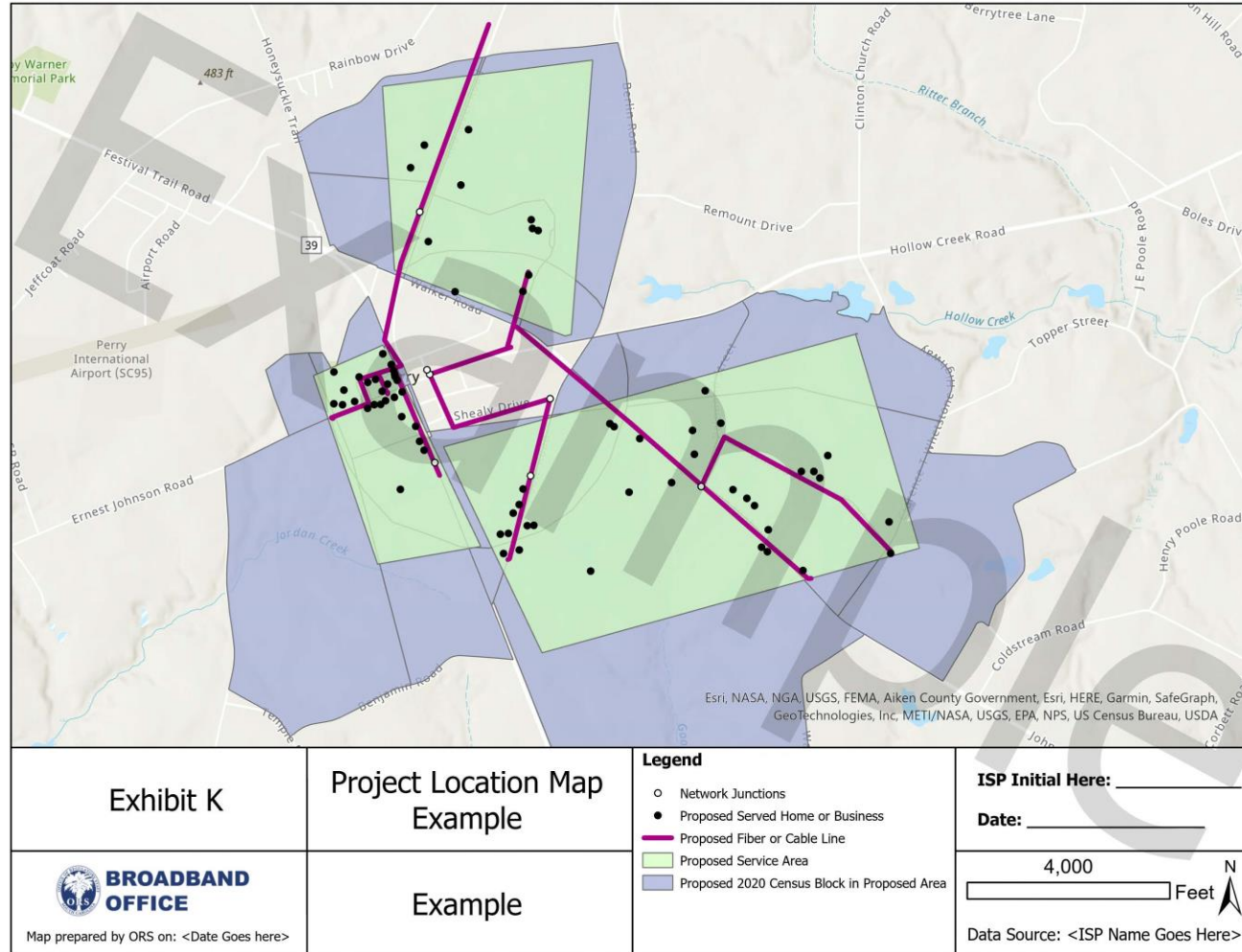
1. All the required materials/documentation needs to be submitted to the ARPA 1.0 folder on Citrix



Why are we collecting GIS data?

- Data collected is used for federal reporting
- Broadband office leverages GIS to screen grant applications
 - Limit overbuilds
 - Inform the public of a broadband project (Census Block Level)
- If awarded a grant, GIS data will be used to develop a map (to be included in the grant agreement), and verify project construction
 - ORS can use the data in the event of an audit

Mapped Template GIS Data (Exhibit K)



Key Takeaways

- Map challenges supersede areas in the March 31, 2022, eligibility map
- Template GIS Data must be submitted **AND** be fully attributed for an ARPA 1.0 Priority Area Application Submission
- GIS data must match information filled out in the Grant Application – non-matching, incomplete submissions may be rejected
- Applications, Attachments, and GIS Data are due Aug 31, 2022, by 5:00pm EST and submitted to your Citrix ShareFile® folder
- Email Broadband@ors.sc.gov with questions

Appendices

- Appendix A: GIS Data Dictionary
- Appendix B: Steps to create New Eligible Census Block layer
- Appendix C: Load Data to Template Geodatabase

Appendix A: GIS Data Dictionary

Appendix A: GIS Data Dictionary

Layer Name	Layer Type	Definition
Proposed Project Service Area	Polygon	The serviceable project area boundary from which all structures will have Broadband Access upon completion of the project
Attribute Name	Data Type	Definition
Project ID	Text	Unique ID provided by an ISP
TechType Alias = Technology Type	Text	Type of Technology to be deployed (Fiber to the Premises, Hybrid Fiber/Coax, Fixed Wireless/Satellite)

Appendix A: GIS Data Dictionary cont.

Layer Name	Layer Type	Definition
2020 Census Blocks in Proposed Service Area	Polygon	Eligible 2020 Census Block data depicting only those areas for which a proposed project may occur
Attribute Name	Data Type	Definition
Project ID	Text	Unique ID provided by an ISP
GEOID 2020	Integer	Unique Census Block ID for a given feature instance
PerServed Alias = Percent to be Served	Float	Percentage of housing units within a Census Block to be served upon completion of the project expressed as a decimal value
TotHouse Alias = Total Housing Unit	Integer	Total number of housing units in the census block
TotK12 Alias = Total number of K – 12 Students	Text	Total number of K – 12 students
DDA Alias = HUD DDA	Text	Indicating if it is a HUD DDA Census block

Appendix A: GIS Data Dictionary cont.

Layer Name	Layer Type	Definition
Proposed Line Work	Line	Proposed broadband lines an ISP will construct upon completion of the project
Attribute Name	Data Type	Definition
FCCTech Alias = FCC Technology Code	Integer	The FCC Technology code proposed for construction (50, 43, 42)
Length	Integer	Length in feet of a given line segment
DepMethod Alias = Deployment Method	Text	The method for which Broadband technology will be deployed at a given line segment (Aerial, Buried, Wireless)

Appendix A: GIS Data Dictionary cont.

Layer Name	Layer Type	Definition
Proposed Project Served Structures	Point	Projected Homes/Business/Other structures that will be passed upon completion of the project
Attribute Name	Data Type	Definition
Type	Text	The type of structure that could be served upon completion of the project (Home, Business, Other)
Address	Text	Full address of the structure (House Number, Street Name, Unit/Apt., City, and Zip Code)

Appendix A: GIS Data Dictionary cont.

Layer Name	Layer Type	Definition
Network Junctions	Point	Projected major surface features along a Fiber Line segment
Attribute Name	Data Type	Definition
Type	Text	The type of surface feature that's part of the fiber network (Node, Large Cabinet, Pedestal, etc.)

Appendix B: Steps to create New Eligible Census Block layer

1. Download data from Citrix SharePoint®
 - SC Broadband Eligibility Map Layer -
 - SC_Broadband_Eligibility_Map_032022.gdb.zip
 - Or SC_Broadband_Office_Eligibility_Map_Data_032022.zip
 - Or SC_Broadband_Office_Eligibility_Table_032022.zip
 - Accepted Map Challenges Layer -
 - Accepted March 31 2022 Eligibility Map Challenges.zip
2. Add the downloaded SC Broadband Eligibility Map Layer and Accepted Map Challenges Layer

Appendix B: Steps to create New Eligible Census Block layer cont.

3. Right click the SC Broadband Eligibility Map Layer > Join and Relates > add join

The screenshot shows the 'Add Join' dialog box with the following configuration:

- Input Table:** SC_Broadband_202112_Eligibility
- Input Join Field:** GEOID20
- Join Table:** Accepted March 31 2022 Eligibility Map Challenges
- Join Table Field:** GEOID20
- Keep All Target Features
- Index Joined Fields
-
-

Appendix B: Steps to create New Eligible Census Block layer cont.

4. “Select by Attributes” within the SC Broadband Eligibility Map Layer

- Note: Use the **second** “GEOID20” field name in drop down

5. Create subset from current selection (step 4) for unserved (N) **or** priority area (PA) census blocks

- Note: Use the **first** “Served” field name in drop down for both

Step 4:
Selects 144,927 census blocks

Select By Attributes

Input Rows
SC_Broadband_202112_Eligibility

Selection Type
New selection

Expression
Where GEOID20 is null

Load Save Remove

SQL

Apply OK

Step 5:
Selects 14,964 census blocks

Select By Attributes

Input Rows
SC_Broadband_202112_Eligibility

The input has a selection. Records to be processed: 144,927

Selection Type
Select subset from the current selection

Expression
Where Served is equal PA
Or Served is equal N

Load Save Remove

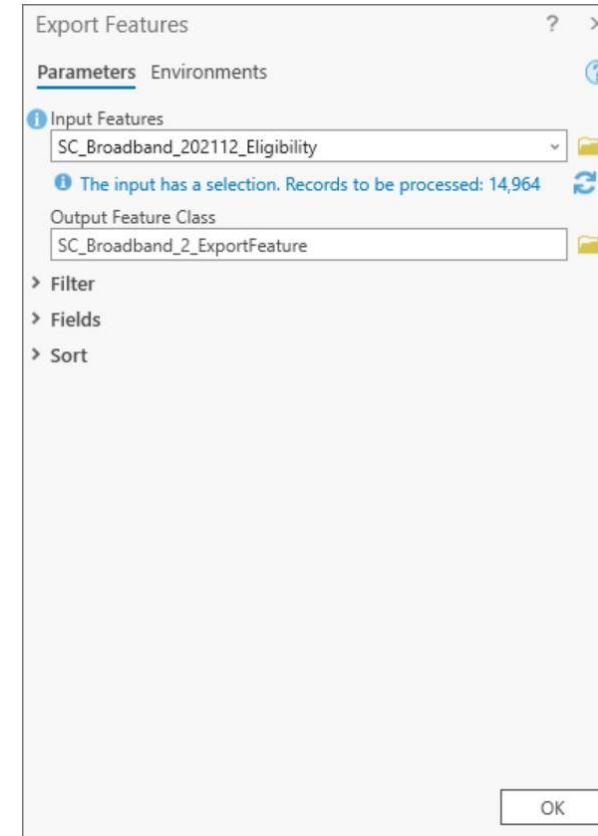
SQL

Apply OK

Appendix B: Steps to create New Eligible Census Block layer cont.

6. Right click the SC Broadband Eligibility Map Layer > Join and Relates > Remove All Joins
7. Right click the SC Broadband Eligibility Map Layer > Data > Export Features

Total Eligible Census Blocks for ARPA SLFRF: 14,964

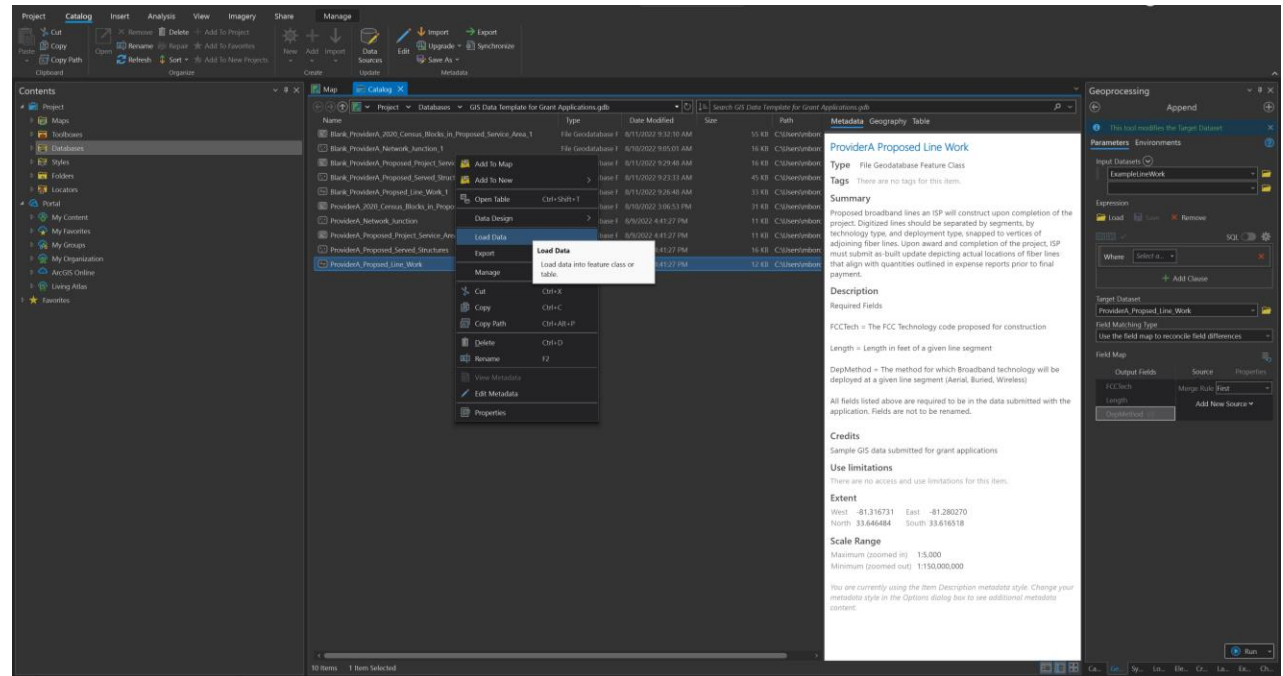


Appendix C: Load Data to Template Geodatabase

1. Delete all attributes from template files

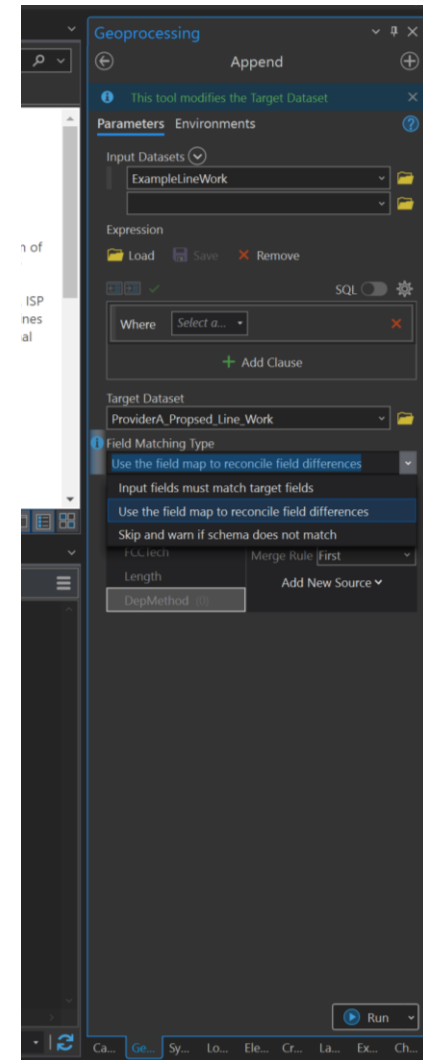
2. Navigate to the Template .gdb in catalog. Select the applicable feature you wish to load your data to.

Right click -> Load Data



Appendix C: Load Data to Template Geodatabase cont.

3. This will open the append tool.
 - The Input Datasets field must be populated by your data file that you wish to load to the ORS Broadband Template feature (example shown as "ExampleLineWork").
 - For the Field Matching Type dropdown, select "Use the field map to reconcile field differences"



Appendix C: Load Data to Template Geodatabase cont.

4. The Template Data field names will be populated in the Output Fields section within the field map.

- Click the desired field you would like to populate.
- In the Source window directly next to the output field, match the template column to the column in your dataset that holds the associated data.
- MUST HIT ADD SELECTED.
- Once it is added the “(0)” indicator in the Output field column will disappear.

